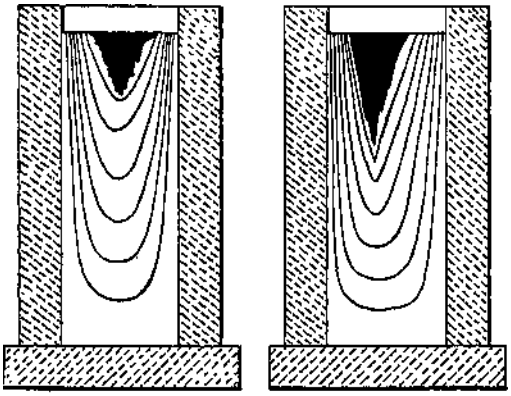
must manifest itself as a funnel-shaped cavity in the top of the ingot, of which the base is the larger, and the height the lesser, the slower the setting of the upper portion takes place. Inversely, in proportion as the upper portion sets more rapidly, the base of the funnel will be smaller and its height greater (vide Pig. 18.)
Finally, if chilling takes place in an unequal manner, so that one side of the ingot remains warmer and therefore remains fluid longer than the other side, the cavity will shift to this side, as shown in Pig. 19.
Generally, combinations of the three conditions obtain and
J^v
sX°V

f wmf

Fro. 17.
FIG. 18.
FIG, 19.
correspondingly alter the shape and locality of the cavities in the ingot.
The magnitude of the cavities depends on the degree of superheating and admits of being influenced by the mode of" casting. If one casts slowly, or permits (as for example happens in ascensional casting) the steel to rise slowly in the moulds, whereby much heat is able to be lost by radiation, the amount of the cavities or " pipe " is decreased. But it can never in this wise come below a specified minimum, and the absolute magnitude of the same must become greater the larger the ingots.
The explanation of the pipe formation indicates the means